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(12) **United States Patent**  
**Carder et al.**(10) **Patent No.:** **US 9,510,614 B2**(45) **Date of Patent:** **Dec. 6, 2016**(54) **FOOD PRODUCTS PREPARED WITH SOLUBLE WHOLE GRAIN OAT FLOUR**(71) Applicant: **The Quaker Oats Company**, Chicago, IL (US)(72) Inventors: **Gary D. Carder**, Barrington Hills, IL (US); **Yongsoo Chung**, Palatine, IL (US); **Ronald G. Deutsch**, Hampshire, IL (US); **Juan Carlos Fernandez Feito**, Colonia Del Valle (MX); **Justin French**, Frisco, TX (US); **Ursula Vanesa Lay Ma**, Palatine, IL (US); **Mayte Lee**, Delray Beach, FL (US); **Margaret J. Miller**, Irvington, NY (US); **Holly Ramage**, Little Elm, TX (US); **Robert E. Chatel**, Hoffman Estates, IL (US)(73) Assignee: **The Quaker Oats Company**, Chicago, IL (US)

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**A23C 19/09** (2006.01)(52) **U.S. Cl.**CPC . **A23L 2/52** (2013.01); **A21D 6/00** (2013.01); **A21D 6/003** (2013.01); **A21D 8/042** (2013.01); **A21D 13/04** (2013.01); **A23C 9/1315** (2013.01); **A23C 9/154** (2013.01); **A23C 9/1544** (2013.01); **A23C 19/09** (2013.01); **A23G 1/56** (2013.01); **A23G 9/42** (2013.01); **A23L 2/02** (2013.01); **A23L 2/38** (2013.01); **A23L 2/395** (2013.01); **A23L 7/198** (2016.08); **A23L 19/09** (2016.08); **A23L 23/10** (2016.08); **A23L 33/20** (2016.08); **A23L 33/21** (2016.08); **A23P 10/10** (2016.08); **A23P 30/20** (2016.08); **A23V 2002/00** (2013.01)(58) **Field of Classification Search**CPC ..... **A23L 1/10**; **A23L 2/52**; **A23L 1/052**; **A23L 1/0008**; **A23L 1/40**; **A23C 9/154**; **A23C 19/00**; **A21D 6/00**USPC ..... 426/565  
See application file for complete search history.(56) **References Cited**

## U.S. PATENT DOCUMENTS

1,163,175 A 12/1915 Rullman  
1,384,894 A 7/1921 Horlick  
3,116,150 A 12/1963 Baker  
3,317,402 A 5/1967 Smith et al.  
3,391,003 A 7/1968 Armstrong  
3,494,769 A 2/1970 Tressler  
3,579,352 A 5/1971 Bookwalter  
3,595,671 A 7/1971 Cooke

(Continued)

## FOREIGN PATENT DOCUMENTS

AU 1989045913 12/1989  
CA 1045890 1/1979

(Continued)

## OTHER PUBLICATIONS

Chinese Patent Application 200880025660.8, Office Action dated Aug. 2, 2012.

Wang Changquing, et al, Study on the Extruding Production Method of Soluble Oats Fiber, vol. 28, No. 2, pp. 45-48, dated Mar. 20, 2002, with English Abstract.

Vasanthan, V. et al., "Dextrinization of Starch in Barley Flours With Thermostable Alpha-Amylase by Extrusion Cooking", Starke-Starch, Wiley-VCH Verlag, Weinheim, DE, XP001110714, ISSN: 0038-9056, vol. 53, No. 12, pp. 616-622, dated Dec. 1, 2001 (Abstract Only).

(Continued)

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James R. Gourley; Carstens & Cahoon(57) **ABSTRACT**

Food products prepared from whole grain oat flour having soluble components. The soluble whole oat flour maintains its standard of identity as whole grain and thus has the characteristics of whole grain oats. Aspects of the present invention relate to the use of the soluble oat flour in liquid food products such as beverages, semi-solid food products such as yogurt, and solid food products such as bakery items in order to provide enhanced health benefits.

**16 Claims, 8 Drawing Sheets**